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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/608,737

06/27/2003

James D. Parsons

378-21-020

7690

23935

7590

12/08/2005

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EXAMINER

HOANG, TU BA

ART UNIT

PAPER NUMBER

3742

DATE MAILED: 12/08/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	10/608,737	PARSONS, JAMES D.	
	<b>Examiner</b>	<b>Art Unit</b>	
	Tu Ba Hoang	3742	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 27 September 2005.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-5, 7, 8, 10-14, 19, 20, 24-30, 35, 36, 40-46, 51 and 52 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-5, 7-8, 10-14, 19-20, 24-30, 35-36, 40-46, and 51-52 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 27 June 2003 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                        | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)               | Paper No(s)/Mail Date. _____  |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date <u>02/24/04</u> .  | 6) <input type="checkbox"/> Other: _____                                    |

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***Election/Restrictions***

Applicant's election of group I, claims 1-5, 7-8, 10-14, 19-20, 24-30, 35-36, 40-46, and 51-52 with traverse in the reply filed on September 27, 2005 is acknowledged. Because applicant did not distinctly and specifically point out the supposed errors in the restriction requirement, the election has been treated as an election without traverse (MPEP § 818.03(a)). The requirement is still deemed proper and is therefore made FINAL. This application contains claims 70-72 drawn to an invention nonelected with traverse in the reply set forth above. A complete reply to the final rejection must include cancellation of nonelected claims or other appropriate action (37 CFR 1.144) See MPEP § 821.01.

***Drawings***

The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the sensor and signal source recited in claims 1, 4, 24, and 40, and additional substrate with W layer as recited in claims 19-20, 35-36, 51-52 must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

***Claim Rejections - 35 USC § 112***

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 1-5, 7-8, 10-14, 19-20, 24-30, 35-36, 40-46, and 51-52 are rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for providing a electrical device in cooperating the use of a control circuit which includes a low voltage source and an ammeter to measure the temperature coefficient resistance

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of the W layer or W film (i.e., conductive layer) on the ceramic substrate (i.e., AlN substrate) of the device (thereby providing the capability of self-sensing its own temperature), does not reasonably provide enablement for the use of separate sensor to sense the response of the W layer or conductive layer. It is appeared that the claimed system as a whole is intended to be a self-sensing temperature sensor or a temperature sensor. The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the invention commensurate in scope with these claims. It is noted that nowhere in the specification to find the use of such separate sensor to sense the response but the claimed system itself.

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1-5, 7-8, 10-14, 19-20, 24-30, 35-36, 40-46, and 51-52 are also rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claim 1, the phrase "...to apply an electrical actuating signal to heat said W layer..." recited at lines 5-6 renders the claim indefinite because it is not clear how "actuating signal" can cause such "heating". Does applicant mean "voltage" or "current" is applied to the W layer thereby generating heat? Clarification is needed. There are also insufficient antecedent bases for "the response" recited at line 7 and "the temperature" recited at lines 8-9 in the claim. The phrase "said W layer having a response to said actuating signal which varies with the W layer's temperature" recited at lines 9-11 is also vague and cannot be clearly understood. Does applicant means "the relationship of temperature coefficient of resistance of the W layer? Clarification is also needed.

In claim 4, there is insufficient antecedent basis for "the response" recited at line 9 in the claim.

In claim 19, there are insufficient antecedent basis for "said...conductive layer" recited at lines 9-10. Such conductive layer must be clearly defined.

Claims 24 and 40 are considered indefinite as for the similar reason set forth in claim 1 above. Appropriate corrections are suggested.

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

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The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) and the Intellectual Property and High Technology Technical Amendments Act of 2002 do not apply when the reference is a U.S. patent resulting directly or indirectly from an international application filed before November 29, 2000. Therefore, the prior art date of the reference is determined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

Claims 1-3, 12-13, 24-25, 28-29, 40-41, and 44-45 are rejected under 35 U.S.C. 102(a and e) as being anticipated by Chang et al (US 6,403,037). Chang et al shows all features of the claimed invention (Figures 5) including a heater/sensor system capable of self-sensing its own temperature comprising an AIN or insulative substrate 50 (i.e., aluminum nitride), a thin film W layer or tungsten heater 56 (columns 15-16) on the substrate, a signal source or voltage source (at the top of column 16) adapted to apply an electrical actuating signal to heat the W layer 56, a sensor or RTD thermistor 52 adapted to sense responses of the W layer to the actuating signal as an indication of the temperature of the W layer, wherein the responses are varied with the W layer temperatures, the W layer is formed by a plurality of parallel and serpentine shaped strands, the resistant layer is the outer portions of the plate where the resistors are inside of each plate as noted at the top of column 16, the substrate and the W layer have inherently the same expansion coefficient and solubility (i.e., has an expansion coefficient within 1.00 +/- 0.07 of the substrate as recited in claims 24 and 40 since they are the same materials as disclosed by the Applicant).

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-3, 11-14, 24-30, and 40-46 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wado et al (US 6,450,025) in view of Chang et al (US 6,403,037). Wado et al discloses all features of the claimed invention including a thin film of W (column 9, lines 30-40) with the thin film heater 4 on a substrate 2 (column 1, lines 18-40), a sensor portion 5 detecting the response while the heater portion 4 is heated (set forth at the bottom of column 4), wherein the sensor 5 indicates the temperature of the heater 4 since it measures air temperature, which is related to the heater temperature by delta T (columns 4-5), the strands of the sensor heater 4,5 and substrate 2 are disclosed at Figure 1, the latter appearing square or rectangular so that a rectangular substrate is met to fit into a desired flow pipe, the materials of the heater and substrate are the same as modified so that the properties are met, a protective layer 15 with the cap layer 16. Wado et al fails to show the substrate is AIN substrate. The use of ceramic substrate or insulative substrate is well known in the art, as evidence, Chang et al show at column 16 such as substrate 50 of AIN and preferred to other

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ceramics for W systems like of Wado et al. It would have been obvious to one having ordinary skill in the art at the time the invention was made to utilize in Wado et al the AlN substrate as taught by Chang et al in order to provide an useful implicitly compatible material with the W layer.

Claims 19-20, 35-36, 51-52 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wado et al in view of Chang et al as applied to claims 1-3, 11-14, 24-30, and 40-46 above, further in view of Wiegleb et al (US 4,972,708). Wado et al in view of Chang et al disclosed substantially all features of the claimed invention as previously set forth except for the use of additional substrate and W layer. Wiegleb et al discloses a plurality of air flow sensors (Figures 5 and 7), each having multiple substrate and conductive layers 12c. It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the system of Wado et al in view of Chang et al with the use of additional substrate and conductive layer as taught by Wiegleb et al in order to form such a standard set up for flow measurements.

Claims 4, 7-8, and 10 would be allowable if rewritten or amended to overcome the rejection(s) under 35 U.S.C. 112, 1<sup>st</sup> and 2nd paragraph, set forth in this Office action.

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure: Nakamura et al (US 6,316,116).

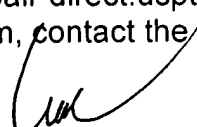
#### **REMARK**

All of the double patenting rejections have been withdrawn in lieu of the T.D filed August 2, 2005.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tu Ba Hoang whose telephone number is (571) 272-4780. The examiner can normally be reached on Mon-fri from 8:30AM to 6:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robin Evans can be reached on (571) 272-4777. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

  
Tu Ba Hoang  
Primary Examiner  
Art Unit 3742

November 31, 2005